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| 09/955,263 | 09/17/2001 | David A. Voeller | 7992 | 8689 |

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12412 POWERS COURT DRIVE SUITE 200
ST. LOUIS, MO 63131-3615

EXAMINER

VO, HUYEN X

| ART UNIT | PAPER NUMBER |
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2655

DATE MAILED: 05/20/2004

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/955,263

Applicant(s)

VOELLER ET AL.

Examiner

Huyen Vo

Art Unit

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/17/2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>2</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-5, 7, 12, 17-21, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Casby et al. (US Patent No. 6085428).

1. Regarding claim 1, Casby et al. disclose in combination with a vehicle wheel alignment system having a central processing unit for controlling the operation of the vehicle wheel alignment system (*figure 4*), an improvement which comprises:

the central processing unit configured with at least one software object adapted to process data representative of voice audio input to identify one or more spoken commands (*referring to figure 4 or col. 4, ln. 8-40*);

wherein the central processing unit is responsive to the software object to control the operation of at least one component of the wheel alignment system in response to one or more spoken commands contained in the voice audio input (*col. 4, ln. 8-40*).

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2. Regarding claim 12, Casby et al. disclose in combination with a vehicle wheel alignment system having a central processing unit for controlling the operation of the vehicle wheel alignment system (*figure 4*), an improvement which comprises:

the central processing unit configured to identify one or more spoken commands from received voice audio input (*elements 44 and 58 of figure 4*);

the central processing unit further configured to identify an operational context in which a voice audio input is received (*the speech recognition unit 58 interprets and understands the input speech command*); and

wherein the central processing unit is responsive to one or more identified spoken commands and to the identified operational context to control the operation of at least one component of the wheel alignment system (*col. 4, ln. 8-40*).

3. Regarding claim 17, Casby et al. disclose in combination with a vehicle wheel alignment system having a central processing unit for controlling the operation of the vehicle wheel alignment system (*figure 4*), an improvement which comprises:

central processing unit configured with at least one software object adapted to generate at least one voice audio output signal (*col. 4, ln. 8-67*); and

wherein said central processing unit is responsive to the software object to communicate the generated voice audio signal to an audio output device (*col. 4, ln. 8-67*).

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4. Regarding claim 18, Casby et al. disclose a method for controlling a vehicle wheel alignment system having a central processing unit configured with at least one software object for processing voice audio signals, at least one alignment angle sensor, a display, and a microphone (*figure 4 and claim10 in col. 9*), comprising:

receiving, at the microphone, at least one voice audio command (*element 14 of figure 4*);

communicating at least one voice audio command from the microphone to the software object (*through elements 16 and 16a of figure 4*);

processing, with at least one software object, the communicated voice audio command (*Speech processor 58 of figure 4*); and

responsive to the processing of the voice audio command, the central processing unit performing one or more actions (*col. 4, ln. 8-40*).

5. Regarding claim 23, Casby et al. disclose a method for controlling a vehicle wheel alignment system having a central processing unit configured for processing voice audio signals, at least one alignment angle sensor, a display, and at least one microphone (*figure 4 and claim10 in col. 9*), comprising:

receiving, at at-least one microphone, one or more voice audio commands (*element 14 of figure 4*);

communicating one or more voice audio commands from at least one microphone to the central processing unit (*through elements 16 and 16a of figure 4*);

processing the communicated one or more voice audio commands (*Speech processor 58 of figure 4*);

identifying a current operating context for the vehicle wheel alignment system (*the speech recognition unit 58 of figure 4 interprets the spoken command and issues appropriate instructions*);

associating one or more actions corresponding to the current operating context with the communicated one or more voice audio commands (*col. 4, ln. 8-40*); and

responsive to the association, the central processing unit performing one or more actions (*col. 4, ln. 8-40*).

6. Regarding claims 3-4, Casby et al. further disclose that the central processing unit is responsive to the software object to control the operation of a display in response to one or more spoken commands contained in the voice audio input (*col. 3, ln. 46 to col. 4, ln. 40*), and the voice audio input contains at least one request for information, and wherein the central processing unit is responsive to the software object to control the operation of the display to present the requested information (*col. 4, ln. 8-40*).

7. Regarding claim 5, Casby et al. further disclose that at least one software object is configured to parse data representative of voice audio input and to extract from the data one or more commands for the central processing unit (*in order to recognize the input speech, the speech recognition processor 58 of figure 4 must first process the*

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input signal and extract speech parameters and compares the extracted parameters against speech models stored in the memory).

8. Regarding claim 7, Casby et al. further disclose that at least one microphone adapted to receive voice audio, at least one microphone disposed remotely from an operator and configured to produce a signal representative of the received voice audio for communication to the central processing unit (*col. 2, ln 48-65*).

9. Regarding claims 19-21, Casby et al. further disclose that the central processing unit presents alignment angle information to an operator on the display and alignment angle adjustment instructions to an operator on the display (*col. 3, ln. 1-21, the alignment information is the alignment angle information*), and the central processing unit directs at least one software object to generate a voice audio response for communication to an operator via an audio speaker (*col. 4, ln. 8-40*).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rigsby et al. (US Patent No. 6556971) in view of Attias (US Patent No. 6185309).

10. Regarding claim 24, Rigsby et al. disclose a method for controlling a vehicle wheel alignment system having a central processing unit configured with at least one software object for processing voice audio signals, at least one alignment angle sensor, a display, a first microphone, and at least one additional microphone (*figure 6*), comprising:

receiving, at the first microphone, at least one voice audio command together with ambient noise (*col. 5, ln. 53-60*);

generating, at the first microphone, a first audio signal representative of at least one voice audio command together with ambient noise (*output of element 614 in figure 6*);

receiving, at at-least one additional microphone, ambient noise (*col. 5, ln. 53-60*);

generating, at at-least one additional microphone, at least one additional audio signal representative of the ambient noise (*col. 5, ln. 53-60, the additional microphone can be placed far from the first microphone to pick up ambient noise*);

communicating the portion of the first audio signal representative of at least one voice audio command to the software object (*speech recognition processor 658 in figure 6*);

processing, with at least one software object, the communicated signal (*speech recognition processor 658 in figure 6*); and

responsive to the processing of the signal, the central processing unit performing one or more actions (*col. 10, ln. 1-26*).

Rigsby et al. do not disclose the step of clarifying a portion of the first audio signal representative of at least one voice audio command by utilizing at least one additional audio signal. However, Attias et al. teach the step of clarifying a portion of the first audio signal representative of at least one voice audio command by utilizing at least one additional audio signal (*by using the technique of blind source separation col. 5, ln. 32 to col. 6, ln. 28*). The advantage of using the teaching of Attias et al. in Rigsby et al. is to separate the signal of interest from the background noise and other interferences to enhance speech quality.

Since Rigsby et al. and Attias are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Rigsby et al. by incorporating the teaching of Attias in order to separate the signal of interest from the background noise and other interferences to enhance speech quality.

11. Claims 6 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Casby et al. (US Patent No. 6085428) in view of Cobbett et al. (US Patent No. 5799278).

12. Regarding claim 6, Casby et al. do not disclose that each of the spoken commands is phonetically distinct. However, Cobbett et al. teach that each of the spoken commands is phonetically distinct (col. 5, ln. 38-44). The advantage of using the teaching of Cobbett et al. in Casby et al. is to avoid misrecognizing phonetically similar commands.

Since Casby et al. and Cobbett et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Casby et al. by incorporating the teaching of Cobbett et al. in order to avoid misrecognizing phonetically similar commands.

13. Regarding claim 25, Casby et al. disclose a method for controlling a vehicle wheel alignment system having a central processing unit configured for processing voice audio signals, at least one alignment angle sensor, a display, and at least one microphone (*figure 4 and claim 10 in col. 9*), comprising:

receiving, at least one microphone, one or more voice audio commands from a predetermined set comprising voice audio commands (*element 14 of figure 4*);

communicating one or more received voice audio commands from at least one microphone to the central processing unit (*through elements 16 and 16a of figure 4*);

processing the communicated audio commands (*Speech processor 58 of figure 4*);

associating one or more actions with the processed voice audio commands (*col. 4, ln. 8-40*); and

responsive to the association, the central processing unit performing one or more actions (*col. 4, ln. 8-40*).

Casby et al. do not disclose that the voice audio commands are phonetically distinct. However, Cobbett et al. teach that the voice audio commands are phonetically distinct (*col. 5, ln. 38-44*). The advantage of using the teaching of Cobbett et al. in Casby et al. is to avoid misrecognizing phonetically similar commands.

Since Casby et al. and Cobbett et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Casby et al. by incorporating the teaching of Cobbett et al. in order to avoid misrecognizing phonetically similar commands.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Casby et al. (US Patent No. 6085428) in view of Jin et al. (US Patent No. 6654683).

14. Regarding claim 2, Casby et al. do not disclose that at least one software object is configured to utilize VoiceXML to process the data representative of the voice audio input to identify one or more spoken commands; and wherein at least one software object is further configured to utilize VoiceXML to translate the identified one or more spoken commands into operating instructions.

However, Jin et al. teach that at least one software object is configured to utilize VoiceXML to process the data representative of the voice audio input to identify one or more spoken commands (*col. 10, ln. 1-41*); and wherein at least one software object is

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further configured to utilize VoiceXML to translate the identified one or more spoken commands into operating instructions (*col. 10, ln. 1-41*). The advantage of using the teaching of Jin et al. in Casby et al. is to create dialogs that bring the advantages of web-based development and content delivery to interactive voice response applications.

Since Casby et al. and Jin et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Casby et al. by incorporating the teaching of Jin et al. in order to create dialogs that bring the advantages of web-based development and content delivery to interactive voice response applications.

Claims 8, 10, 13-14, 16, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Casby et al. (US Patent No. 6085428) in view of Attias et al. (US Patent No. 6185309).

15. Regarding claim 8, Casby et al. disclose that a first microphone is positioned to primarily receive voice audio, the first microphone configured to produce a first signal representative of received voice audio input (*col. 2, ln 48-65*). Casby et al. do not disclose a second microphone positioned to primarily receive ambient and transient background audio, the second microphone configured to produce a second signal representative of received ambient and transient background audio; and an audio processor module configured to receive the first and second signals and to provide data representative of voice audio input to the central processing unit, the audio processor

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module further adapted to utilize the first signal and the second signal to clarify voice audio input.

However, Attias teaches a second microphone positioned to primarily receive ambient and transient background audio, the second microphone configured to produce a second signal representative of received ambient and transient background audio (*figure 2, two microphones are located far apart. The first microphone primarily serves to receive speech signal while the second microphone serves to background noises*); and an audio processor module configured to receive the first and second signals and to provide data representative of voice audio input to the central processing unit, the audio processor module further adapted to utilize the first signal and the second signal to clarify voice audio input (*this is referring to blind source separation techniques disclosed in the INSTANTANEOUS MIXING and CONVOLUTIVE MIXING sections in col. 6, ln. 53 and col. 9, ln. 51, respectively*). The advantage of using the teaching of Attias in Casby et al. is to separate the signal of interest from the background noise or other interferences.

Since Casby et al. and Attias are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Casby et al. by incorporating the teaching of Attias in order to separate the signal of interest from the background noise or other interferences to enhance speech quality.

16. Regarding claim 10, the combination of Casby et al. and Attias et al. disclosed above further disclose that the first and second microphones are positioned to receive sounds from within a predetermined area (*referring to figure 2 in Attias et al.*).

17. Regarding claim 13, Casby et al. disclose in combination with a vehicle wheel alignment system having a central processing unit for controlling the operation of the vehicle wheel alignment system (*figure 4*), an improvement which comprises: a central processing unit configured to identify one or more spoken commands from received voice audio input (*element 44 of figure 4*).

Casby et al. do not disclose a plurality of microphones, each of said microphones receiving sounds including operator voice audio, ambient background noise, and transient background noise, and each of said microphones configured to produce a signal representative of said received sounds; and an audio processor module disposed between said central processing unit and said plurality of microphones, said audio processor module configured to receive and combine each of said signals from said plurality of microphones and to extract voice audio input from said combined signals to provide data representative of said voice audio input to said central processing unit.

However, Attias teaches a plurality of microphones, each of the microphones receiving sounds including operator voice audio, ambient background noise, and transient background noise, and each of the microphones configured to produce a signal representative of the received sounds (*figure 2*); and an audio processor module disposed between the central processing unit and a plurality of microphones, the audio

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processor module configured to receive and combine each of the signals from a plurality of microphones and to extract voice audio input from the combined signals to provide data representative of the voice audio input to the central processing unit (*referring figures 3a-b or INSTANTANEOUS MIXING OR CONVOLUTION MIXING sections in col. 6, ln. 53 and col. 9, ln. 51, respectively*). The advantage of using the teaching of Attias in Casby et al. is to separate the signal of interest from the background noise or other interferences to enhance speech quality.

Since Casby et al. and Attias are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Casby et al. by incorporating the teaching of Attias in order to separate the signal of interest from the background noise or other interferences to enhance speech quality.

18. Regarding claims 14 and 16, the combination of Casby et al. and Attias et al. discussed in claim 13 disclose that a plurality of microphones defines a beam-forming microphone array (*referring to figure 2 in Attias et al.*) and a plurality of microphones defines a blind source separation microphone array (*referring to INSTANTANEOUS MIXING or CONVOLUTIVE MIXING sections in col. 6, ln. 54 and col. 9, ln. 51, respectively*).

19. Regarding claim 22, Casby et al. do not disclose the step of communicating further includes the step of clarifying the voice audio command by reducing ambient

noise and transient noise accompanying the voice audio command. However, Attias et al. teach the step of communicating further includes the step of clarifying the voice audio command by reducing ambient noise and transient noise accompanying the voice audio command (*this is referring to blind source separation techniques disclosed in the INSTANTANEOUS MIXING and CONVOLUTIVE MIXING sections in col. 6, ln. 53 and col. 9, ln. 51, respectively*). The advantage of using the teaching of Attias in Casby et al. is to separate the signal of interest from the background noise or other interferences.

Since Casby et al. and Attias are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Casby et al. by incorporating the teaching of Attias in order to separate the signal of interest from the background noise or other interferences to enhance speech quality.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Casby et al. (US Patent No. 6085428) in view of Attias et al. (US Patent No. 6185309) further in view of Zurek (US Patent No. 5764778).

20. Regarding claim 9, the modified Casby et al. do not disclose that the first and second microphones are mounted to a headset. However, Zurek teaches that the first and second microphones are mounted to a headset (col. 2, ln. 50-67). The advantage of using the teaching of Zurek in the modified Casby et al. is to increase linear span resulting in greater directionality (col. 2, ln. 12-15).

Since the modified Casby et al. and Zurek are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Casby et al. by incorporating the teaching of Zurek in order to increase linear span resulting in greater directionality (col. 2, ln. 12-15).

Claims 11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Casby et al. (US Patent No. 6085428) in view of Attias et al. (US Patent No. 6185309), and further in view of Matsuo (US Patent No. 6618485).

21. Regarding claim 11, the modified Casby et al. do not disclose that the first and second microphones are unidirectional. However, Matsuo teaches that the first and second microphones are unidirectional (col. 14, ln. 40-60). The advantage of using the teaching of Matsuo in the modified Casby et al. is to provide a good estimate of the direction or position of the sound source.

Since the modified Casby et al. and Matsuo are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Casby et al. by incorporating the teaching of Matsuo in order to provide a good estimate of the direction or position of the sound source.

22. Regarding claim 15, the modified Casby et al. do not disclose the audio processor module that is further configured to utilize the combined signals to track movement of an operator. However, Matsuo teaches the audio processor module that is further configured to utilize the combined signals to track movement of an operator (col. 21, ln. 33 to col. 22, ln. 12, *tracking the movement of an operator by detecting the direction or position of the sound source*). The advantage of using the teaching of Matsuo in the modified Casby et al. is to provide a good estimate of the direction or position of the sound source so that the desired signal can be enhanced satisfactorily.

Since the modified Casby et al. and Matsuo are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Casby et al. by incorporating the teaching of Matsuo in order to provide a good estimate of the direction or position of the sound source so that the desired signal can be enhanced satisfactorily.

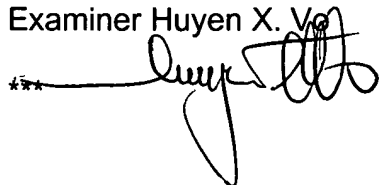
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen Vo whose telephone number is 703-305-8665. The examiner can normally be reached on M-F, 9-5:30.

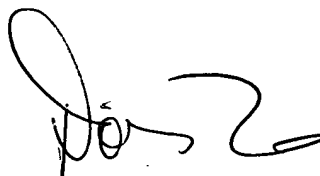
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 703-305-4827. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner Huyen X. Vo



May 10, 2004



DORIS H. TO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600